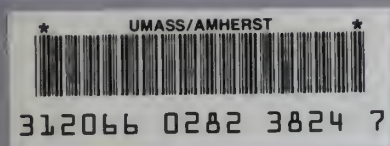


MASS. HS30.2: C17



Cape Cod Hospital Description of Injury Discharges



GOVERNMENT DOCUMENT
COLLECTION

FEB 7 1991

University of Massachusetts
Depository Copy

Massachusetts Department of Public Health
Statewide Comprehensive Injury Prevention Program

November 1990

904/358

CAPE COD HOSPITAL DESCRIPTION OF INJURY DISCHARGES

**Statewide Comprehensive Injury Prevention Program
Bureau of Parent, Child and Adolescent Health
Massachusetts Department of Public Health
150 Tremont Street, Boston, MA 02111**

November 1990

Michael S. Dukakis, Governor
Philip W. Johnston, Secretary of Human Services
David H. Mulligan, Commissioner of Public Health
Deborah Klein Walker, Assistant Commissioner

Funding for this report was provided in part by
Disabilities Prevention Program
Centers for Disease Control
in cooperation with
Office of Disability Prevention
Massachusetts Department of Public Health

Acknowledgements

Cynthia Rodgers, M.S.P.H.
Director, Statewide Comprehensive Injury Prevention Program

Maxine Schuster, Ph.D.
Assistant Director for Research and Evaluation
Primary Author

The Statewide Comprehensive Injury Prevention Program wishes to thank Marlene Anderka, Carey Azzara, Cathy Barber, Christopher Christian, Theresa Lynch, Katherine Messenger, Robert Murphy, Victoria Ozonoff, Eve Shapiro, and Susan Tan-Torres for reviewing this report; Cynthia Wisniewski for computer programming; Pearl Russo for editorial assistance; and Dennis Sterzin for graphic design.

We also wish to thank Renee Lincoln, Director of Medical Records and Nancy Daniel, Supervisor of Coders for assuring the high level of E coding at Cape Cod Hospital. James Lyons, Chief Executive Officer, Stephen Guimond, Vice President for Finance, and Ann Williams, Director of Community Relations also reviewed the report and lent their support to the use of the data for community-based injury prevention efforts.

Table of Contents

Introduction.....	1
Cape Cod Hospital.....	1
External Cause of Injury Coding.....	2
Data Set.....	3
Overview of Injury and Other Discharges.....	4
Description of Injury Discharges by External Cause of Injury.....	5
Falls.....	6
Motor-Vehicle Occupant Injuries.....	9
Self-inflicted Injuries.....	10
Injuries Among the Elderly.....	11
Conclusion.....	12
Tables	
1. Discharge Data for Cape Cod Hospital.....	3
2. External Cause of Injury for Cape Cod Hospital.....	5
Figures	
1. Distribution of Age Groups for Leading Causes of Injury Discharges.....	7
2. Distribution of Leading Causes of Injury Discharges by Age Group.....	8
Appendices	
A. ICD-9-CM External Cause of Injury Code Groupings.....	13
B. ICD-9-CM Nature of Injury Code Principal Diagnosis Groupings.....	21



Digitized by the Internet Archive
in 2014

<https://archive.org/details/capecodhospitald00mass>

Introduction

Injuries, both unintentional and intentional, are a leading public health problem in Massachusetts and in the other 49 states. More young people die from injuries than from any other cause, and older people are hospitalized for injuries at the highest rate of any age group. Most injuries can be prevented or reduced in severity through strategies that combine education, regulation, and technology.

The primary goal of the Statewide Comprehensive Injury Prevention Program (SCIPP) is the reduction of injuries among Massachusetts citizens. This goal is met through development of methods to improve existing data sources, development of strategies and training materials to help integrate injury prevention into ongoing public health services, coordination of injury prevention efforts, dissemination of information, and research into the causes of injuries. The Office of Disability Prevention (ODP) is also involved in planning prevention programs.

Accurate and comprehensive data about injuries are needed to develop and improve preventive strategies, to target high-risk groups, and to evaluate the effectiveness of injury prevention methods. The hospital discharge data set compiled by the Massachusetts Rate Setting Commission is an important source of demographic, clinical, and financial data about injured people who have required admission to acute care hospitals. Hospital discharge data include many fatal and most serious nonfatal injuries and provide a broader picture of injuries than death data alone. However, a crucial item, the external cause of injury code (E code), is not required for reimbursement, and only a minority of discharge records are E-coded.

Cape Cod Hospital has been diligent in coding the external cause of injury for most of its discharges included in the most recently available discharge data bases. Therefore, we have selected its discharges for further analysis to demonstrate the value of external cause coding. The focus will be on the three leading causes of injuries for people admitted to Cape Cod Hospital (falls, motor-vehicle occupant, and self-inflicted injuries) and on injuries among people 65 years old and older.

Cape Cod Hospital

Cape Cod Hospital is a 258-bed general hospital located in Hyannis, Massachusetts, within Barnstable County, and is accredited by the Joint Commission on Accreditation of Health Care Organizations.

In 1987, the 11 towns in Barnstable County that comprised the hospital's primary service area¹ had an estimated population² of 112,995 composed of 54.6% females and 45.4% males. A quarter of the people were 65 years old and older as compared to 13.6% statewide. Some towns had even higher proportions of elderly people, e.g., Orleans (33.4%), Chatham (32.8%), and Yarmouth (31.5%). More than 2% (2.2%) were 85 years old and older as compared to 1.4% statewide.

External Cause of Injury Coding

E codes are the external cause of injury codes (E800-999) developed as part of the International Classification of Diseases (ICD-9-CM) (Appendix A). They are used primarily in conjunction with ICD-9-CM N codes (N800-999)³ that describe the clinical nature of the injury and body part affected (Appendix B). E codes classify the environmental events, circumstances, intent, and conditions that cause injury, poisoning, and other adverse effects, e.g., fall on same level from slipping, tripping, or stumbling. Secondary E codes are useful in identifying the place of occurrence of an injury, e.g., home, or reason for primary cause, e.g., adverse drug reaction precipitating a fall.

Together, analysis of both N and E codes can tell us a great deal about how, when, where, and why people get injured. Some of the questions that can be answered include:

Who is injured?

How are these people injured?

Where do these injuries take place?

How serious are the injuries?

How many of the injuries have occurred, and over what period of time?

How do local injury rates compare with the national and state rates?

"E-coded hospital discharge data (HDD) systems are potentially one of the most practical and cost-effective means available to collect the data needed to prevent and control injuries. The addition of E codes to HDD systems increases their practical utility to address a major public health problem and obviates the need to establish new data collection systems."⁴

¹ Barnstable, Brewster, Chatham, Dennis, Eastham, Harwich, Orleans, Provincetown, Truro, Wellfleet, and Yarmouth.

² Source: Population estimates were produced by Robert Danley, Bureau of Health Statistics, Research and Evaluation using 1980 Census data and 1990 projected figures developed by MISER (Massachusetts Institute for Social and Economic Research).

³ E-coded discharges with the following N codes are excluded from the analysis of injuries: late effects (N905-909), complications of care (N996-999), and N codes below 800.

⁴ Snizek J, Finklea J, Graitcer P. Injury coding and hospital discharge data. JAMA 1989; 262:2272.

Data Set

A data set was created by combining all discharges from Cape Cod Hospital during FY 1987 and FY 1988 (July 1, 1986 to June 30, 1988) submitted to the Rate Setting Commission. It does not include records of people who died without being admitted nor does it include data on deaths or continued cost of care after discharge. Some discharges represent readmissions for additional treatment of a previous injury or for treatment of a new injury.

The primary focus is the 1,424 E-coded injury discharges with N codes in the 800-904 and 910-995 ranges that account for 5.7% of the 24,843 discharges, 8.6% of the \$90,346,590 in hospital charges, and 8.4% of the 149,475 hospital days. Injuries potentially could account for substantially higher proportions of discharges, charges, and days if we included non-E-coded injury discharges, injury diagnoses that are secondary, and E-coded discharges with principal diagnoses below 800.

Table 1 - Discharge Data for Cape Cod Hospital FY 1987 and FY 1988

Discharges	Number	%	Charges (\$)	%	Days	%
Injuries: (N800-999)*	1,959	7.9	10,343,357	11.4	16,302	10.9
E Code	1,424	5.7	7,754,410	8.6	12,601	8.4
No E Code	165	0.7	759,733	0.8	1,226	0.8
Exclusions**	370	1.5	1,829,214	2.0	2,475	1.7
Other: (N001-799)*	22,884	92.1	80,003,233	88.6	133,173	89.1
TOTAL DISCHARGES	24,843	100.0	90,346,590	100.0	149,475	100.0

* Principal diagnosis.

** Late effects (N905-909) and complications of care (N996-999).

Source: Massachusetts Rate Setting Commission, Uniform Hospital Discharge Data Set.

Overview of Injury and Other Discharges

On the average, injury discharges with N codes in the 800-904 and 910-995 ranges (with and without E codes) were more expensive and the length of hospital stays was longer than for other discharges (with N codes below 800).

- Discharges of people admitted with injuries represented 6.4% of all discharges (1,589).
- Injuries accounted for \$8,514,143 in charges or 9.4% of all hospital charges.
- The median charge for injury discharges was \$3,790 as compared to \$2,436 for other discharges.
- Injuries accounted for 13,827 days of care or 9.3% of all hospital days.
- The median length of stay for injury discharges was six days as compared to four days for other discharges.
- Among injury discharges, 3.6% required more than 28 days of hospital care as compared to 1.4% of other discharges.
- Medicare and Medicaid were the principal sources of payment for more than half of injury (48.1%, 4.2%) and other discharges (46.7%, 5.8%).

Description of Injury Discharges by External Cause of Injury

Almost 90% of injury discharge records (1,424) included the external cause of injury (E code). More than half of E-coded injuries were fall-related, almost a quarter were vehicle-related⁵, and almost 10% were intentional⁶. Discharges for the three most frequent external causes of injury will be described in detail.

Table 2 - External Cause of Injury for Discharges from Cape Cod Hospital

Cause	#	%
Falls	808	56.7
Motor-vehicle occupant	186	13.1
Self-inflicted	103	7.2
Other transportation	38	2.7
Pedal cycle	37	2.6
Motorcycle	34	2.4
Assault	31	2.2
Struck by object	30	2.1
Motor-vehicle/pedestrian	28	2.0
Cutting/piercing	26	1.8
Adverse drug reaction	17	1.2
Poisoning (accidental)	16	1.1
All other causes	70	4.9
All E-coded causes	1,424	100.0

Source: Massachusetts Rate Setting Commission, Uniform Hospital Discharge Data Set.

⁵ Includes motor-vehicle occupant, pedestrian, other transportation, pedal cycle, motorcycle, and off road motor-vehicle injuries.

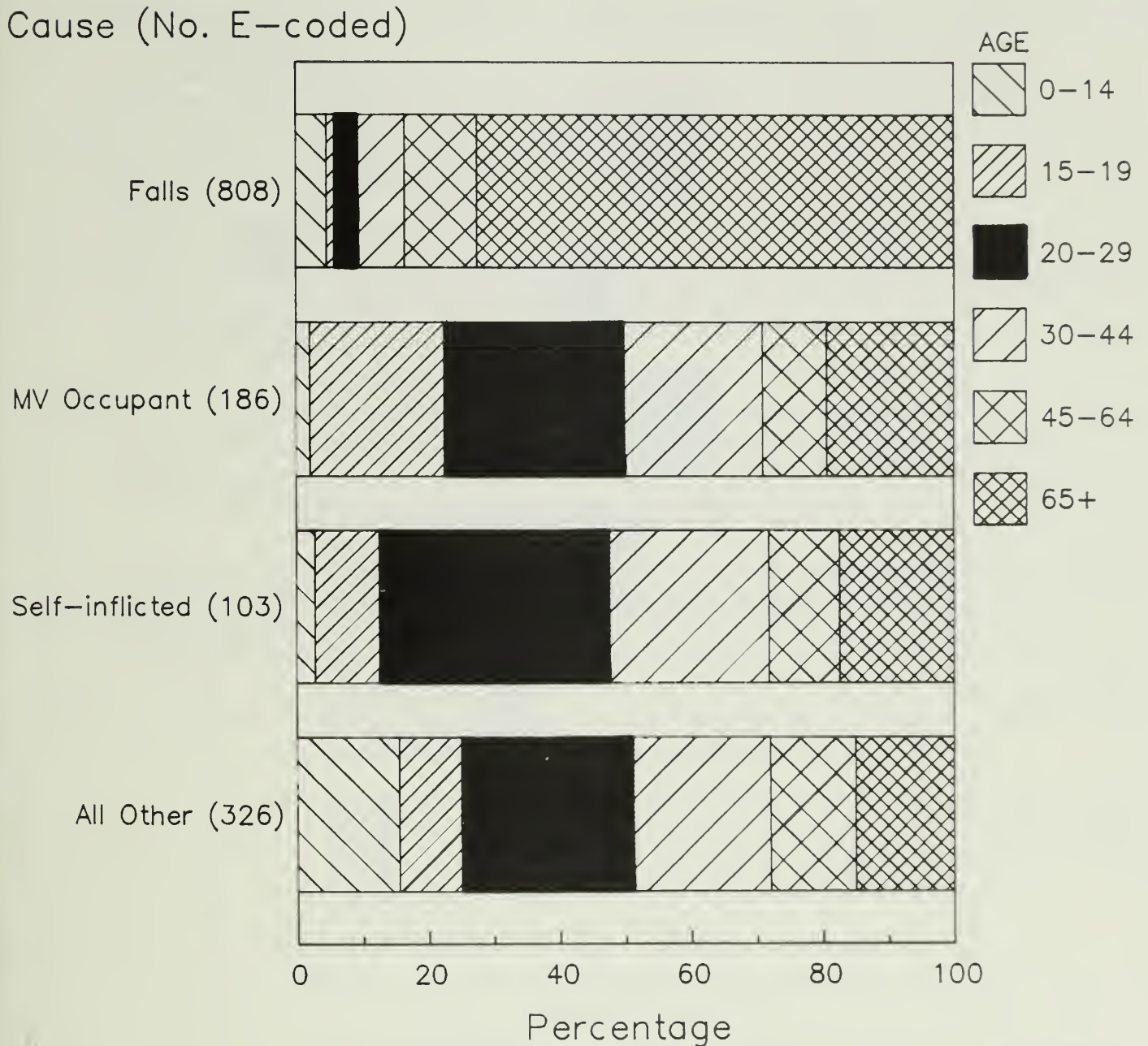
⁶ Includes self-inflicted and assault-related injuries.

Falls

On the average, fall-related discharges were more expensive and the length of hospital stays was longer than for E-coded injury discharges in general, because they involved a higher proportion of elderly people.

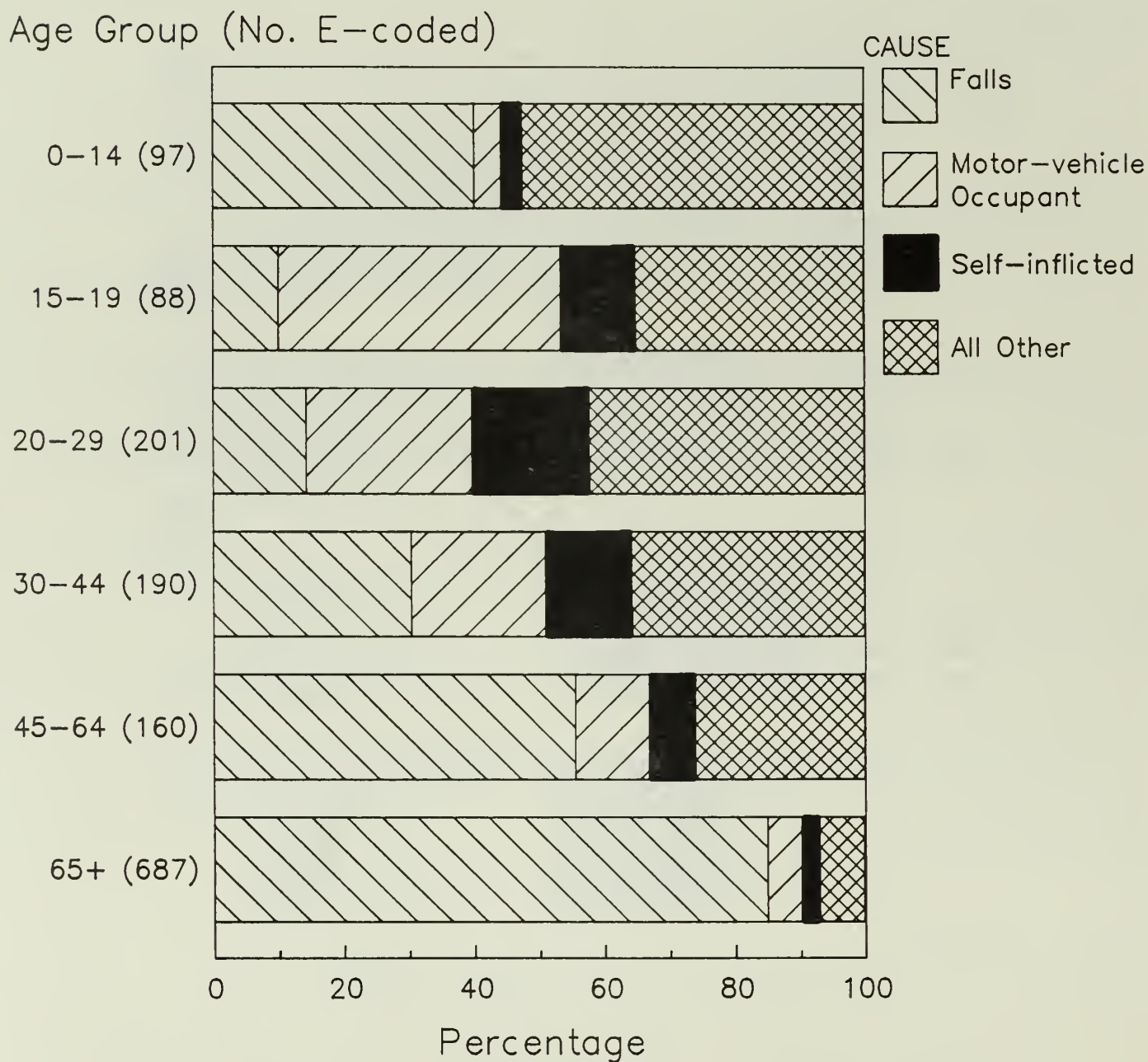
- Falls accounted for more than half (56.7%) of E-coded injury discharges. Falls are the leading cause of injury-related hospital admissions in the United States and in Massachusetts, representing an estimated one-third of discharges for nonfatal injuries.
- Almost three-quarters (72.3%) of fall-related discharges involved people 65 years old and older. In general, the elderly are at highest risk of both dying and being hospitalized as the result of a fall as compared to younger people who experience falls (Figure 1).
- Falls accounted for the largest proportion of discharges within four age groups: 0-14 (40.2%), 30-44 (30.5%), 45-64 (55.6%) and 65 + (85.0%) (Figure 2).
- The median charge for a fall-related discharge was \$5,340 as compared to \$3,919 for all causes of injury.
- The median length of stay was nine days in contrast to six days for all causes of injury.
- Most (82.5%) of the deaths occurred among people hospitalized for fall-related injuries.
- Most fall-related injuries resulted in fractures of various body parts: femur (47.0%), lower limb (15.6%), neck/trunk - no spinal cord injury (12.1%), and upper limb (9.2%).

Figure 1
Distribution of Age Groups for Leading Causes
of Injury Discharges from Cape Cod Hospital



Note: excludes one discharge with invalid age
 Source: Massachusetts Rate Setting Commission,
 Uniform Hospital Discharge Data Set

Figure 2
Distribution of Leading Causes of Injury Discharges
from Cape Cod Hospital by Age Group



Note: excludes one discharge with invalid age
Source: Massachusetts Rate Setting Commission,
Uniform Hospital Discharge Data Set

Motor-Vehicle Occupant Injuries

Discharges of motor-vehicle occupants spanned a broader range of charges, days, and diagnoses than E-coded injury discharges in general.

- Motor-vehicle occupant injuries accounted for more than an eighth (13.1%) of E-coded injury discharges. Injuries to motor-vehicle occupants also comprised the second leading cause of injury-related hospitalizations in the United States and in Massachusetts. They accounted for 10.5% of nonfatal, E-coded injury discharges in FY 1985 among a selected group of acute care hospitals in Massachusetts⁷.
- A fifth (20.4%) of motor-vehicle occupant injuries involved adolescents (ages 15 to 19) as compared to 2.3% for other discharges⁸; more than a quarter (27.4%) were between 20 and 29 years old as compared to 11.0% for other discharges; and more than a fifth (21.0%) were between 30 and 44 years old as compared to 11.2% for other discharges (Figure 1). This age distribution for motor-vehicle occupant injuries also follows national and state patterns.
- More than two-fifths (43.2%) of injury discharges of adolescents resulted from motor-vehicle occupant injuries as did a quarter (25.4%) for young adults (Figure 2). Males were overrepresented among adolescents, accounting for two-thirds (68.4%) of motor-vehicle occupant discharges in this age group.
- The most common principal diagnoses were: neck/trunk-no spinal cord injury (22.6%), lower limb fracture (12.9%), intracranial-no fracture (10.8%), concussion (9.1%), internal injury (7.5%), femur fracture (5.9%), skull fracture (5.9%), and facial fracture (5.4%).

⁷ This group of 31 hospitals accounted for most of the discharges with E codes in the uniform hospital discharge data set.

⁸ N codes below 800.

Self-inflicted Injuries

On the average, discharges for self-inflicted injuries were less expensive and the length of hospital stays was shorter than for E-coded injury discharges in general.

- The third most frequent cause among E-coded injuries was self-inflicted injury (7.2%). Among a selected group of acute care hospitals in Massachusetts, self-inflicted injuries were the fourth leading cause of injury-related hospitalizations, accounting for 8.5% of nonfatal, E-coded discharges in FY 1985. Because intent can be difficult to determine, the proportion of these injuries probably is higher than indicated by E codes.
- More than a third (35.0%) of self-inflicted injuries involved people between 20 and 29 years old as compared to 11.0% for other discharges⁹; the second most common age group was people between 30 and 44 years old, accounting for almost a quarter (24.3%) as compared to 11.2% for other discharges (Figure 1). Half were females and half were males.
- The median charge for self-inflicted injury discharges was \$1,997 as compared to \$3,919 for all injury discharges.
- The median length of stay was two days in contrast to six days for all injury discharges.
- All discharges for self-inflicted injuries occurred within 28 days, but a third of the patients were discharged to other facilities.
- Most (92.2%) self-inflicted injury discharges had a principal diagnosis of poisoning or toxic effects.

⁹ N codes below 800.

Injuries Among the Elderly

The elderly, ages 65 and older, comprised a major part of the injury caseload for Cape Cod Hospital.

- Almost half (48.2%) of E-coded injury discharges involved people 65 years old and older, although they comprised a quarter of the population.
- More than a third (36.8%) of injury admissions involved elderly females. Among the elderly, more than three-quarters (76.3%) of injuries involved females.
- Almost a third (30.3%) of injury discharges among the elderly involved people 85 years old and older as compared to 15.3% of other discharges¹⁰ among the elderly.
- Falls accounted for more than four-fifths (85.0%) of injury discharges among the elderly (Figure 2).
- Almost a quarter (22.1%) of fall-related injuries among the elderly included an additional E code. Most of these codes specified the place of occurrence of the falls, mainly the home (53.5%) or nursing home (22.5%). Adverse drug reaction (15.5%) was the other secondary type of E code specified. We cannot state that these secondary E codes are representative of all fall-related injuries among the elderly, considering that the majority of records did not include them.
- Almost half (49.0%) of the falls occurred on the same level from slipping, tripping, or stumbling (E885); more than a third (36.1%) were coded as other and unspecified falls, including accidental falls not otherwise specified, falls from bumping against object and falls on same level not otherwise specified (E888); the remaining falls were mainly on or from other stairs or steps (7.0%, E880.9) and from chair or bed (5.1%, E884.2).
- The most common towns of residence for elderly people admitted with fall-related injuries were Barnstable (25.3%), Yarmouth (15.6%), Dennis (14.7%), Harwich (10.3%), Chatham (8.6%), and Orleans (5.1%). Some (4.5%) were out-of-state residents. More than 90% were residents of Barnstable County.
- Most (87.5%) of the elderly people suffering fall-related injuries were admitted through the Emergency Department.
- Most fall-related injuries resulted in fractures of various body parts: femur (59.1%), neck/trunk-no spinal cord injury (13.0%), lower limb (9.2%), and upper limb (7.2%).
- Three-quarters of live, fall-related discharges involved either transfers to other facilities (45.6%), mainly intermediate care facilities, or home care (29.9%).
- The other main causes for hospitalization among the 65+ group were: vehicle-related (7.4%), self-inflicted (2.6%), and adverse drug reaction (1.3%) (Figure 2).
- Although only 5.2% of injury discharges among the elderly involved motor-vehicle occupants, the elderly, especially females, accounted for almost a fifth (19.4%) of these injuries (Figures 1 and 2).

¹⁰ N codes below 800.

Conclusion

This description of injury discharges from Cape Cod Hospital for FY 1987 and FY 1988 was made possible by the coding of the external cause for most of the injuries treated. By analyzing E codes in conjunction with the demographic, clinical, and financial data from hospital discharge records, we have provided the potential basis for targeting specific causes, age groups, and communities for injury prevention efforts on Cape Cod.

For example, the data give visibility to the problem of falls among the elderly. Although falls contribute in a major way to total health care costs and personal suffering, they seldom make newspaper headlines.

This analysis could help in the design, implementation, and evaluation of an effective program to reduce falls among the elderly in specific Cape Cod communities. Falls among the elderly could be reduced through the use of home safety devices and education about safety habits offered by senior citizen centers, nursing homes, social service agencies, Visiting Nurse Associations, and a variety of public and private health care providers. Professional staff and volunteers could receive training and materials through the Statewide Comprehensive Injury Prevention Program and the Office of Disability Prevention and through community agencies knowledgeable about injury prevention for the elderly. The effectiveness of the injury prevention activities then could be assessed by examining hospital discharge data in the following years as well as other types of data.

In conclusion, "the universal use of E codes in hospital discharge data is one of the most important goals for the injury prevention community. Consistent use of E codes would provide an extremely valuable resource for the study of injury rates and patterns. Injury control practitioners would be able to use this information to obtain a much more accurate view of a local injury problem. It would also allow much more thorough aggregation of injury morbidity data as well as comparisons of the data at the local, state, and national levels and among specialized studies."¹¹

¹¹ National Committee for Injury Prevention and Control. Injury prevention: meeting the challenge. New York: Oxford University Press, 1989: Am J Prev Med, Suppl: 5(3):45.

Appendix A

ICD-9-CM External Cause of Injury Code Groupings

Motor Vehicle-Occupant

E810.0, E810.1, E811.0, E811.1,
E812.0, E812.1, E813.0, E813.1,
E814.0, E814.1, E815.0, E815.1,
E816.0, E816.1, E817.0, E817.1,
E818.0, E818.1, E819.0, E819.1,
E822.0, E822.1, E823.0, E823.1,
E824.0, E824.1, E825.0, E825.1,

Operator or passenger in motor vehicle.

Includes: Collision and non-collision traffic and non-traffic accidents; driver or passenger of car, bus, truck, van, or construction machinery in transport under its own power; off road motor vehicle operating on a public highway

Excludes: Occupant or passenger of bicycle, motorcycle, off-road vehicle not on highway, motorized bicycles; pedestrians

Motor Vehicle - Pedal Cycle Rider

E810.6, E811.6, E812.6, E813.6,
E814.6, E815.6, E816.6, E817.6,
E818.6, E819.6, E822.6, E823.6,
E824.6, E825.6

Any person riding on a pedal cycle involved in a collision or non-collision accident with a motor vehicle on a public highway.

Includes: Accidents on and off public highways, e.g., parking lots, driveways

Motor Vehicle - Pedestrian

E810.7, E811.7, E812.7, E813.7,
E814.7, E815.7, E816.7, E817.7,
E818.7, E819.7, E822.7, E823.7,
E824.7, E825.7

Pedestrian injured in any collision or non-collision traffic or non-traffic accident involving a motor vehicle

Motorcyclist

E810.2, E810.3, E811.2, E811.3,
E812.2, E812.3, E813.2, E813.3,
E814.2, E814.3, E815.2, E815.3,
E816.2, E816.3, E817.2, E817.3,
E818.2, E818.3, E819.2, E819.3,
E822.2, E822.3, E823.2, E823.3,
E824.2, E824.3, E825.2, E825.3

Operator or passenger on motorcycle involved in collision or non-collision traffic or non-traffic accident

Includes: Motorized bicycle (moped, scooter, tricycle);

Non-MV Pedal Cycle

E826.0-E826.9

occupant of side car

Any person injured in a non-motor vehicle accident involving a pedal cycle

Includes: Fall from bicycle; bicycle colliding with pedestrian, other bicycle, animal, object, or other road vehicle, e.g., streetcar

EXCLUDES: Accidents involving motor vehicles, railroad trains, and aircraft

Off Road Motor Vehicle

E820.0-E820.9, E821.0-E821.9

Non-traffic accidents involving motor vehicles designed to negotiate rough or soft terrain or snow

Includes: All terrain vehicles (ATVs) and snowmobiles

Other Transport Accidents

E800.0-E807.9,
E810.4, E810.5, E810.8, E810.9
E811.4, E811.5, E811.8, E811.9
E812.4, E812.5, E812.8, E812.9
E813.4, E813.5, E813.8, E813.9
E814.4, E814.5, E814.8, E814.9
E815.4, E815.5, E815.8, E815.9
E816.4, E816.5, E816.8, E816.9
E817.4, E817.5, E817.8, E817.9
E818.4, E818.5, E818.8, E818.9
E819.4, E819.5, E819.8, E819.9
E822.4, E822.5, E822.8, E822.9
E823.4, E823.5, E823.8, E823.9
E824.4, E824.5, E824.8, E824.9
E825.4, E825.5, E825.8, E825.9
E827.0-E829.9, E831.0-E831.9,
E833.0-E838.9, E840.0-E845.9,
E846-E848

All other transport accidents

Includes: Motor vehicle traffic accident involving other and unspecified person; any motor vehicle non-traffic accident involving any person; occupants of streetcars and animal riders; all railway accidents except those with motor vehicles; Any person involved in any air or water transport vehicle accident; animal rider or rider of animal-drawn vehicle; motor vehicle non-traffic accident while boarding or alighting

SEE NOTE 1

Misadventure

E870.0-E876.9

Misadventures to patients during surgical and medical care

Excludes: Accidental

overdose of drugs

Postoperative Complications

E878.0-E879.9

Surgical and medical procedures as the cause of abnormal reaction without mention of misadventure at the time of the procedure

Includes: Organ rejection, malfunction of devices, postoperative renal failure or intestinal obstruction

Excludes: Adverse reactions to anesthesia without mention of misadventure; infusion and transfusion reactions without mention of misadventure

Falls

E880.0-E886.9, E887, E888

SEE NOTE 2

Includes: Falls on same level (slipping, tripping); falls on different levels (stairs, bed, ladder; diving into swimming pool; tackles in sports

Excludes: Falls from horses in sports or transport; falls from burning buildings; from moving vehicles and bicycles; while boarding or leaving vehicles; falls onto sharp objects; falls into water

Environmental/Radiation

E900.0-E909, E926.0-E926.9, E928.0-E928.8

Accidents due to natural and environmental factors

Includes: Excessive heat, cold, air pressure changes, travel and motion, hunger, thirst, exposure, neglect, venomous animals and plants, unspecified environmental, exposure to radiation

Excludes: Ingestion of poisonous animals or plants; plant puncture wounds, animal bites; road vehicle accidents involving animals

Accidental drowning & submersion

E830.0-E830.9, E832.0-E832.9,
E910.0-E910.9

Includes: Accidental drowning and submersion, swimmer's cramp, water sports, any falls or accidents involving watercraft

Excludes: Transport accidents other than watercraft; injuries due to diving into swimming pool and striking side or bottom; drowning as a result of a motor vehicle accident

Fire, Flames and Hot Substances (Burns and Scalds)

E890.0-E899, E924.0-E924.9

Accidents caused by fire and flames; scalds; hot substances; objects; steam

Includes: Accidental burning by fire, secondary fires due to explosion; asphyxia due to fire; smoke and fumes due to fire; fall or jump from burning structure; ignition of clothing or bedclothes

Excludes: Fire in machinery in operation; transport vehicle except stationery; fire in other vehicle, e.g., ski lift; watercraft fires; intentional fires; electric current; radiation burns; internal burns

Poisonings, accidental

E850.0-E869.9

Accidental poisonings by drugs, medicinals, and biological substances

Includes: Solids, liquids, gases and vapors

Excludes:

1. administration with suicidal or homicidal intent or with intent not determined as accidental or purposeful
2. adverse reactions to correct drugs properly administered
3. food poisoning (bacterial)
4. poisoning and toxic reactions to plants
5. carbon monoxide poisoning from motor vehicle, watercraft, or aircraft in transit
6. carbon monoxide poisoning from smoke and fumes in fire

Suffocations (accidental)

E911, E912, E913.0-E913.9

Inhalation and ingestion of food or object causing obstruction of respiratory passage or suffocation; accidental mechanical suffocation

Includes: Smothering, choking

Excludes: Intentional suffocations and those not determined as accidental or purposeful; any ingestion of a foreign body without mention of asphyxia or obstruction of respiratory passage

Foreign body

E914-E915

Foreign body in the eye, adnexa, or other orifice

Includes: Injury to respiratory tract without obstruction or asphyxia

Excludes: Corrosive liquids in eye

Struck by object

E916, E917.0-E917.9, E918

Struck by falling object, striking against or struck by persons or objects, caught accidentally between objects

Excludes: Striking against object or persons with fall; accident involving machinery or motor vehicle in operation; assault; cutting or piercing instrument; accident resulting in drowning or submersion

Machinery in operation

E919.0-E919.9

Accident caused by machinery in operation

Cutting/Piercing

E920.0-E920.9

Accident caused by cutting or piercing instrument or object

Includes: Fall on sharp object; accident caused by powered or non-powered hand tools or appliances

Explosion/Firearms, AccidentalE921.0-E921.9, E922.0-E922.9
E923.0-E923.9

Accident caused by firearms, explosion of pressure vessel or explosive material; fireworks

SEE NOTE 3

Excludes: intentional firearms and those not determined as accidental or purposeful; explosions due to or causing fire, machine explosions, explosions in transport vehicles or machinery in operation; air rifles and BB guns

Electricity

E925.0-E925.9

Accident caused by electrical currents

Overexertion

E927

Overexertion and strenuous movements from excessive physical exercise, recreation, lifting, pulling, pushing

Unspecified

E928.9

Accident unspecified

Late effectsE929.0-E929.9, E959, E969,
E977, E989, E999Late effects of accidents,
assaults, injury undetermined
as accidental or purposeful,
legal intervention, suicide,
war operations**Adverse drug reaction**

E930.0-E949.9

Drugs, medicinal and
biological substances causing
adverse effects in therapeutic
useIncludes: Correct drug
properly administered in
therapeutic or prophylactic
dosage as the cause of any
adverse effect**Suicide & self-inflicted**E950.0-E953.9, E954
E955.0, E955.9, E956,
E957.0-E958.9Suicide and self-inflicted
injuriesIncludes: Suicide, attempted
suicide, and intentional self-
inflicted injuries**Homicide & Purposely Inflicted
by other**E960.0-E962.9, E963-E964,
E965.0-E965.9, E966,
E967.0-E968.9Injuries inflicted by another
person with intent to injure
or kill, by any meansIncludes: Child battering,
rape**Legal intervention**

E970-E976, E978

Injuries inflicted by the
police or other law enforcing
agents on duty. Includes
legal execution by any method

Undetermined intent

E980.0-E988.9

Injury undetermined whether accidentally or purposely inflicted

Includes: Self-inflicted injuries but not poisoning by corrosive and caustic substances

Wars

E990.0-E998

Injuries resulting from operations of war

Includes: Injuries to military personnel and civilians caused by and occurring during war and civil insurrections

Excludes: Training accidents

NOTES:

1. E-code entries in the E810-E819 and E822-E825 ranges which end in .8 and .9 refer to "other" and "unspecified" injury victim, respectively. Often, these are injuries to motor vehicle occupants, and some researchers classify them as such. We have elected not to do so because of the possible introduction of bias into the data: This practice will overestimate the importance of occupant injury, and underestimate the problem of pedestrian, bicycle and motorcycle injuries.
2. Fracture, cause unspecified (E887), has been included as a fall although it could have a different cause.
3. Firearms may be of special interest and appear in several categories. If examining firearms as a separate category, the grouping would be as follows:

Firearms

E922.0-E922.9, E955.0-E955.4, E965.0-E965.4, E970, E985.0-E985.4, E991.2 Accidental; self-inflicted; assault; legal intervention and war operations, undetermined accidental or purposeful

Includes: Firearm injury due to legal intervention and war operations,

Excludes: Air rifles, BB Guns

Appendix B

ICD-9-CM Nature of Injury Code Principal Diagnosis Groupings

<u>Principal Diagnosis</u>	<u>ICD-9-CM Code</u>
Skull Fracture	800-801.99
	803-804.99
Concussion	850-850.99
Facial Fracture	802-802.5
	802.8 - 802.9
Intracranial Non-Fracture	851-854.19
Neck Trunk Fracture	805-805.98
	807-809.1
Vertebral Fracture with SCI	806-806.9
Upper Limb Fracture	810-819.1
Femur Fracture	820-821.39
Lower Limb Fracture	822-829.1
Dislocations	830-839.9
Sprains and Strains	840-848.9
Internal Injuries	860-869.1
Eye Injuries	802.6-802.7, 870-871.9, 900.03, 918.0-918.9, 921.0-921.9 930.0-930.9, 940.0-940.9, 941.02 941.12, 941.22, 941.32, 941.42, 941.52, 950-950.9, 951.0-951.1, 951.3
Open Wounds	872-884.2
	890-894.2
Traumatic Amputation	885-887.7
	895-897.7
Blood Vessel Injury	900-900.02
	900.1-904.9
Superficial Injury	910-917.9
	919-919.9
Contusions	920
	922-924.9
Crushing	925-929.9
Foreign Body in Orifice	931-939.9
Burns	941-941.01, 941.03-941.11, 941.13-941.21 941.23-941.31 941.33-941.41 941.43-941.51 941.53-949.5
Nerve Injury	951.2, 951.4-957.9
Poisoning and Toxic Effects	960-989.9
Late Effects	905-909.9
Traumatic Complications/ unspecified	958-959.9
Complications of Care	996-999.9
Other and Unspecified	990-995.9

